# Complete Summary

## GUIDELINE TITLE

Prevention of falls in long-term care facilities.

## BIBLIOGRAPHIC SOURCE(S)

Norris MA, Walton RE, Patterson CJS, Feightner JW. Prevention of falls in long-term care facilities. London (ON): Canadian Task Force on Preventive Health Care (CTFPHC); 2005. 4 p. [17 references]

## GUIDELINE STATUS

This is the current release of the guideline.

A complete list of planned reviews, updates and revisions is available under the What's New section at the Canadian Task Force on Preventive Health Care (CTFPHC) Web site.

## COMPLETE SUMMARY CONTENT



## SCOPE

### DISEASE/CONDITION(S)

Falls and fall injuries

### GUIDELINE CATEGORY

Prevention
Risk Assessment
Screening

### CLINICAL SPECIALTY

Family Practice
Geriatrics
Physical Medicine and Rehabilitation
Preventive Medicine

### INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Physical Therapists
Physician Assistants
Physicians

### GUIDELINE OBJECTIVE(S)

To systematically review the evidence for the effectiveness of fall prevention programs in long-term care facilities (LTC)

Note: This guideline does not evaluate the financial costs of implementing prevention programs or trials that address very limited interventions (e.g., as vitamin or dietary supplementation alone).

### TARGET POPULATION

Residents in long-term care facilities (LTC), i.e., facilities that provide communal dwelling, 24-hour supervision, and health care, and have a minimum of 4 beds

Note: This review did not evaluate research on fall prevention for those elderly admitted to institutional settings such as chronic care beds in acute care hospitals, chronic care hospitals, or psychiatric hospitals. Similarly, elderly living in retirement homes, which typically offer minimal assistance and supervision for elderly residents who are independent in most activities of daily living, are not the population to which this review is targeted.

### INTERVENTIONS AND PRACTICES CONSIDERED

1. Multifactorial screening and intervention program for all residents admitted to long-term care (LTC) facilities, including post-fall assessment
2. Structured multidisciplinary assessment in the immediate post-fall period (e.g., 7 days) (considered, but not recommended)
3. Structured multidisciplinary assessment of residents deemed to be at high risk or who have a history of falling (considered, but not recommended)
4. Interventions to reduce specific risk factors, e.g., physiotherapy or exercise programs (considered, but not recommended)

### MAJOR OUTCOMES CONSIDERED

- Number of falls
- Injuries and hospitalizations resulting from falls
- Adverse events resulting from interventions

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

## DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

MEDLINE, CINAHL, Ageline, Cochrane and DARE databases were searched from the database start date to May 2003 for randomized controlled trials in which >50% of the study population resided in long term care facilities. Relevant trials published up to May 2004 were also included.

### Inclusion/Exclusion Criteria

Studies evaluating fall prevention or injury reduction were eligible if at least 50% of the sample were residents in long-term care. The outcome of interest was the occurrence of falls and studies evaluating only intermediate outcomes such as muscle strength or balance were excluded. Specific inclusion and exclusion criteria are listed in appendix 1 of the technical report (see "Availability of Companion Documents" field); interventions addressing single risk factor reduction were not included in this review.

The search strategy and search dates are presented in appendix 2 of the technical report. A fall was defined as "an event, reported either by the faller or a witness, resulting in a person inadvertently coming to rest on the ground or another lower level, with or without loss of consciousness or injury." Injurious falls were defined as those resulting in fracture or other injury needing medical attention.

### Selection of Evidence

Two reviewers independently reviewed the literature to identify potentially relevant trials for review based on the title, abstract or descriptors. All authors evaluated the methodological quality of the trials identified as meeting the selection criteria (see appendix 2 of the technical report).

## NUMBER OF SOURCE DOCUMENTS

The review of evidence was based on 10 randomized controlled trials of fall-prevention interventions in long-term care facilities (LTC).

## METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

## RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

### Levels of Evidence

### Research Design Rating

1: Evidence from randomized controlled trial(s)

2-1: Evidence from controlled trial(s) without randomization

2-2: Evidence from cohort or case-control analytic studies, preferably from more than one centre or research group

2-3: Evidence from comparisons between times or places with or without the intervention; dramatic results from uncontrolled studies could be included here

3: Opinions of respected authorities, based on clinical experience; descriptive studies, or reports of expert committees

Quality (Internal Validity) Rating

Good: A study that meets all design-specific criteria* well

Fair: A study that does not meet (or it is not clear that it meets) at least one design-specific criterion* but has no known "fatal flaw"

Poor: A study that has at least one design-specific* "fatal flaw," or an accumulation of lesser flaws to the extent that the results of the study are not deemed able to inform recommendations

*General design-specific criteria are outlined in Harris RP, Helfand M, Woolf SH, Lohr KN, Mulrow CD, Teutsch SM, Atkins D. Current Methods of the U.S. Preventive Services Task Force: A Review of the Process. Am J Prev Med 2001;20(suppl 3):21-35. Inclusion/exclusion criteria are detailed above in the "Description of Methods Used to Collect/Select the Evidence" field.

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Critical Appraisal

The Task Force reviewed 1) the initial analytic framework and key questions for the proposed review; 2) the subsequent draft(s) of the complete manuscript providing critical appraisal of the evidence prepared by the lead author(s), including identification and critical appraisal of key studies, and ratings of the

quality of this evidence using the task force's established methodological hierarchy (see "Rating Scheme for the Strength of the Evidence" field above); and 3) a summary of the evidence and proposed recommendations.

### Consensus Development

Evidence for this topic was presented by the lead author(s) and deliberated upon during task force meetings in February 2003 and June 2003. Expert panelists addressed critical issues, clarified ambiguous concepts, and analyzed the synthesis of the evidence. At the end of this process, the specific clinical recommendations proposed by the lead author were discussed, as were issues related to clarification of the recommendations for clinical application and any gaps in evidence. The results of this process are reflected in the description of the decision criteria presented with the specific recommendations. The group and lead author(s) arrived at final decisions on recommendations unanimously.

Procedures to achieve adequate documentation, consistency, comprehensiveness, objectivity, and adherence to the task force methodology were maintained at all stages during review development, the consensus process, and beyond to ensure uniformity and impartiality throughout.

## RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

### Recommendation Grades for Specific Clinical Preventive Actions

A: The Canadian Task Force (CTF) concludes that there is good evidence to recommend the clinical preventive action.

B: The CTF concludes that there is fair evidence to recommend the clinical preventive action.

C: The CTF concludes that the existing evidence is conflicting and does not allow making a recommendation for or against use of the clinical preventive action; however other factors may influence decision-making.

D: The CTF concludes that there is fair evidence to recommend against the clinical preventive action.

E: The CTF concludes that there is good evidence to recommend against the clinical preventive action.

I: The CTF concludes that there is insufficient evidence (in quantity and/or quality) to make a recommendation, however other factors may influence decision-making.

## COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

## METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
External Peer Review
Internal Peer Review

### DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

#### Peer Review

Subsequent to the meetings, the lead author revised the manuscript accordingly. After final revision, the manuscript was sent by the Task Force to 2 experts in the field (identified by Task Force members at the meeting). Feedback from these experts was incorporated into a subsequent draft of the manuscript.

#### Recommendations of Other Groups

Recommendations for prevention of falls in elderly patients from the following groups were discussed: The U.S. Preventive Services Task Force, the American Geriatric Society, the Scottish Intercollegiate Guidelines Network, the American Medical Directors Association, and Barts and the London, Queen Mary's School of Medicine and Dentistry.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

Recommendation grades (A-E) and levels of evidence (1, 2-1, 2-2, 2-2, 3, good, fair, and poor) are defined at the end of the "Major Recommendations" field.

#### Interventions Directed to the General Population of Long-Term Care Facility (LTC) Residents

The Canadian Task Force on Preventive Health Care (CTFPHC) concludes that there is fair evidence to recommend that a multifactorial intervention program for long-term care residents prevents falls and reduces the rate of injurious falls and hip fractures. Residents should be assessed on admission and re-assessed after a fall (B Recommendation). (Jensen et al., 2003; Becker et al., 2003 [1, fair])

The CTFPHC concludes that there is insufficient evidence to recommend structured multidisciplinary programs that are targeted exclusively to those deemed at highest risk to reduce the risk of future falls* (I Recommendation). (Kerse et al., 2004 [1, fair]; Rubenstein et al., 1990 [1, fair]; Shaw et al., 2003 [1, fair]; Ray et al., 1997 [1, fair})

> *Note: There is evidence that a comprehensive assessment done in a timely manner after a fall (e.g., within a week) can reduce future hospitalization (Rubenstein et al., 1990 [1, fair]). Such assessments can detect recent changes in an individual's health or function, such as an acute or progressive illness, a need for evaluation of medications, increasing frailty, etc.

Selective Interventions Such as Exercise of Physical Therapy

The CTFPHC concludes that there is insufficient evidence to recommend that exercise alone or in combination with other limited interventions is effective in preventing falls in long-term care facility residents (I Recommendation). (Nowalk et al., 2001 [1, fair]; Mulrow et al., 1994 [1, fair]; Fiatarone et al., 1994 [1, fair]; McMurdo, Millar, & Daly, 2000 [1, fair])

Definitions:

Levels of Evidence

Research Design Rating

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Recommendation Grades for Specific Clinical Preventive Actions

A: The Canadian Task Force (CTF) concludes that there is good evidence to recommend the clinical preventive action.

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C: The CTF concludes that the existing evidence is conflicting and does not allow making a recommendation for or against use of the clinical preventive action; however other factors may influence decision-making.

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I: The CTF concludes that there is insufficient evidence (in quantity and/or quality) to make a recommendation, however other factors may influence decision-making.

### CLINICAL ALGORITHM(S)

None provided

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

### REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Maneuver: Multifactorial screening and intervention program for all residents admitted to long-term care facilities.

- Level of Evidence: 1, fair (2 randomized controlled trials [RCTs])

Maneuver: Structured multidisciplinary assessment in the immediate post-fall period (e.g. 7 days).

- Level of Evidence: 1, fair (3 RCTs)

Maneuver: Structured multidisciplinary assessment of residents deemed to be at high risk or who have a history of falling.

- Level of Evidence: 1, fair (1 RCT)

Maneuver: Interventions to reduce specific risk factors (e.g., physiotherapy or exercise programs).

- Level of Evidence: 1, fair (4 RCTs)

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

Reduced falls, injuries, and fear of falling, and maintenance of physical and social function in residents of long-term care (LTC) facilities

### POTENTIAL HARMS

#### Potential Harms of Interventions

- No specific adverse effects of assessment or screening were reported in the studies however, some general effects of screening must be considered. False positive results can lead to more diagnostic and therapeutic procedures. False negatives may impart an ill-advised sense of security to someone who may be at risk. Labeling a person as high-risk could lead to restriction of their activity, use of physical restraints, and reduced independence and quality of life.
- Caution should be raised about the potential harm since one study reported a significant increase in falls during a 1-year fall prevention trial. Implementations that encourage increased activity and mobility without provision of adequate staff resources and safeguards may increase the risk of falling.

## QUALIFYING STATEMENTS

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- The views expressed in this report are those of the authors and the Task Force and do not necessarily reflect those of the external expert reviewers, nor the funding agencies.
- The Canadian Task Force (CTF) recognizes that in many cases patient-specific factors need to be considered and discussed, such as the value the patient places on the clinical preventive action; its possible positive and negative outcomes; and the context and/or personal circumstances of the patient (medical and other). In certain circumstances where the evidence is complex, conflicting, or insufficient, a more detailed discussion may be required.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

### IMPLEMENTATION TOOLS

#### Quick Reference Guides/Physician Guides

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Staying Healthy

### IOM DOMAIN

Effectiveness
Patient-centeredness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Norris MA, Walton RE, Patterson CJS, Feightner JW. Prevention of falls in long-term care facilities. London (ON): Canadian Task Force on Preventive Health Care (CTFPHC); 2005. 4 p. [17 references]

### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

2005

### GUIDELINE DEVELOPER(S)

Canadian Task Force on Preventive Health Care - National Government Agency [Non-U.S.]

### SOURCE(S) OF FUNDING

The Canadian Task Force on Preventive Health Care (CTFPHC) is funded by Health Canada.

### GUIDELINE COMMITTEE

Canadian Task Force on Preventive Health Care (CTFPHC)

### COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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Canadian Task Force on Preventive Health Care, Professor, Department of Family Medicine, University of Western Ontario

## FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

## GUIDELINE STATUS

This is the current release of the guideline.

A complete list of planned reviews, updates and revisions is available under the What's New section at the Canadian Task Force on Preventive Health Care (CTFPHC) Web site.

## GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format from the Canadian Task Force on Preventive Health Care (CTFPHC) Web site.

Print copies: Available from the Canadian Task Force on Preventive Health Care, Clinical Skills Building, 2nd Floor, Department of Family Medicine, University of Western Ontario, London, ON, N6A 5C1.

## AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Norris MA, Walton RE, Patterson CJS, Feightner JW and the Canadian Task Force on Preventive Health Care. Prevention of falls in long-term care facilities: systematic review and recommendations. CTFPHC Technical Report. Ottawa: Health Canada, 2003 Jun. London, ON. Available in Portable Document Format from the Canadian Task Force on Preventive Health Care (CTFPHC) Web site.
- Norris MA, Walton RE, Patterson CJS, Feightner JW and the Canadian Task Force on Preventive Health Care. Prevention of falls in long-term care facilities: recommendation table. Ottawa: Health Canada, 2003 Jun. London, ON. Available from the Canadian Task Force on Preventive Health Care (CTFPHC) Web site.
- Stachenko S. Preventive guidelines: their role in clinical prevention and health promotion. Ottawa: Health Canada, 1994. Available from the "History and Methods" section of the Canadian Task Force on Preventive Health Care (CTFPHC) Web site.
- CTFPHC history/methodology. Ottawa: Health Canada, 1997. Available from the "History and Methods" section of the Canadian Task Force on Preventive Health Care (CTFPHC) Web site.
- Quick tables of current recommendations. Ottawa: Health Canada, 1997. Available from the Canadian Task Force on Preventive Health Care (CTFPHC) Web site.

## PATIENT RESOURCES

None available

### NGC STATUS

This NGC summary was completed by ECRI on September 28, 2005. The information was verified by the guideline developer on October 25, 2005.

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